**Lab Sheet 08**

01)Answer

package lab08;

public class List {

    private int maxsize;

    private int position;

    private Product[]entry;

    public List(int size){

        maxsize=size;

        position=-1;

        entry=new Product[maxsize];

    }

    boolean isEmpty(){

        return(position==-1);

    }

    boolean isFull(){

        return(position==maxsize-1);

    }

    public int listSize(){

        return(position+1);

    }

    public void insertLast(Product x){

        if (isFull()) {

            System.out.println("Attempt to delete an entry from an empty list");

        }else{

            entry[++position]=x;

        }

    }

    public void insertList(int p,Product x){

        if (isFull()) {

            System.out.println("Attempt to delete an entry from an empty list");

        }else if (p<0||p>listSize()) {

            System.out.println("Attempt to delete a position not in the list");

        }else{

            for(int i=listSize();i>p;i--){

                entry[i]=entry[i-1];

                entry[p]=x;

                position++;

            }

        }

    }

    public void deleteList(int p){

        if (isEmpty()) {

            System.out.println("Attempt to delete an entry from an empty list");

        }else if (p<0||p>listSize()) {

            System.out.println("Attempt to delete a position not in the list");

        }else{

            for(int i=p;i<listSize()-1;i++){

                entry[i]=entry[i-1];

                position--;

            }

        }

    }

    public void retriveList(int p){

        if (isEmpty()) {

            System.out.println("Attempt to delete an entry from an empty list");

        }else if(p<0||p>listSize()){

            System.out.println("Attempt to delete a position not in the list");

        }else{

            System.out.println(entry[p]);

        }

    }

    public void replaceList(int p,Product x){

        if (isEmpty()) {

            System.out.println("Attempt to delete an entry from an empty list");

        }else if(p<0||p>listSize()){

            System.out.println("Attempt to delete a position not in the list");

        }else{

            entry[p]=x;

        }

    }

    public void traverseList(){

        for (int i = 0; i < position+1; i++) {

            System.out.println(entry[i]);

        }

    }

    public double calculatesalesAmount(Product x){

        return(x.unitePrice\*x.QSOFriday);

    }

    public void displaysalesAmount(){

        System.out.println("Product ID\tSales Amount(Rs.)");

        for (int i = 0; i < listSize(); i++) {

            double saleAmount=calculatesalesAmount(entry[i]);

            System.out.println(entry[i].productID+"\t\t"+saleAmount);

        }

    }

    public void sortBysalesAmount(){

        for (int i = 0; i < listSize()-1; i++) {

            for (int j = i+1; j < listSize(); j++) {

                if (calculatesalesAmount(entry[i])<calculatesalesAmount(entry[j])) {

                    Product temp=entry[i];

                    entry[i]=entry[j];

                    entry[j]=temp;

                }

            }

        }

    }

    public void correctQuantity(String x,int y){

        for (int i = 0; i < listSize(); i++) {

            if (entry[i].productName.trim().equals(x)) {

                entry[i].QSOFriday=y;

            }

        }

    }

    public void displaysalesAbove(double amount){

        System.out.println("Products with Sales Amount above Rs.: " + amount + "/=");

        for (int i = 0; i < listSize(); i++) {

            double saleAmount=calculatesalesAmount(entry[i]);

            if (saleAmount>amount) {

                System.out.println(entry[i]);

            }

        }

    }

    public void calculateSales(String x){

        double total=0;

        for (int i = 0; i < listSize(); i++) {

            if (entry[i].category.trim().equals(x)) {

                total+=calculatesalesAmount(entry[i]);

            }

        }

        System.out.println("Total Sales Amount for "+x+" Category: Rs. "+total+"/=");

    }

    public double calculateElectonicSales(){

        double total=0;

        for (int i = 0; i < listSize(); i++) {

            if (entry[i].category.trim().equals("Electronics")) {

                total+=calculatesalesAmount(entry[i]);

            }

        }

        return total;

    }

    public double calculatetotalsales(){

        double Total=0;

        for (int i = 0; i < listSize(); i++) {

            Total+=calculatesalesAmount(entry[i]);

        }

        return Total;

    }

    public double calculateElectronicsalespercentage(){

        return(calculateElectonicSales()/calculatetotalsales())\*100;

    }

}

package lab08;

public class Product {

    public String productID;

    public String productName;

    public String category;

    public double unitePrice;

    public int QSOFriday;

    public Product(String productID, String productName, String category, double unitePrice, int QSOFriday) {

        this.productID = productID;

        this.productName = productName;

        this.category = category;

        this.unitePrice = unitePrice;

        this.QSOFriday = QSOFriday;

    }

    public String toString(){

        return(productID+"\t\t"+productName+"\t\t"+category+"\t\t"+unitePrice+"\t\t"+QSOFriday);

    }

}

package lab08;

public class mainPromt {

    public static void main(String[] args) {

        Product p1=new Product("P108", "Wireless Mouse\t", "Electronics", 2160,30);

        Product p2=new Product("P034", "Handbag\t\t", "Accessories ", 3450,5);

        Product p3=new Product("P078", "Phone cover\t", "Accessories ", 1750,26);

        Product p4=new Product("P105", "Bluetooth Speaker", "Electronics", 13780,5);

        Product p5=new Product("P003", "Ladies blouse\t", "Clothing ", 1650,18);

        Product p6=new Product("P053", "Shampoo\t\t", "Groceries", 2370,20);

        Product p7=new Product("P114", "Laptop\t\t", "Electronics", 250000,3);

        Product p8=new Product("P004", "Frock\t\t", "Clothing ", 4520,10);

        Product p9=new Product("P117", "Earphone\t", "Electronics", 7860,2);

        Product p10=new Product("P120", "Microwave oven\t", "Electronics", 56830,15);

        List l1=new List(10);

        l1.insertLast(p1);

        l1.insertLast(p2);

        l1.insertLast(p3);

        l1.insertLast(p4);

        l1.insertLast(p5);

        l1.insertLast(p6);

        l1.insertLast(p7);

        l1.insertLast(p8);

        l1.insertLast(p9);

        l1.insertLast(p10);

        System.out.println("Part (a)---------------------------------------------------------------------------");

        System.out.println("Product ID\tProduct Name\t\t\tCategory\t\tUnitePrice(Rs.)\tQuantity Sold on Friday");

        l1.traverseList();

        System.out.println("");

        System.out.println("Part (b)----------------------------------------------------------------------------");

        System.out.println("");

        l1.displaysalesAmount();

        System.out.println("");

        System.out.println("Part (c)----------------------------------------------------------------------------");

        System.out.println("");

        l1.sortBysalesAmount();

        l1.traverseList();

        System.out.println("");

        System.out.println("Part (d)----------------------------------------------------------------------------");

        System.out.println("");

        l1.correctQuantity("Frock", 49);

        l1.traverseList();

        System.out.println("");

        System.out.println("Part (e)----------------------------------------------------------------------------");

        System.out.println("");

        l1.displaysalesAbove(40000);

        //System.out.println("");

        //l1.calculateSales("Electronics");

        System.out.println("");

        System.out.println("Part (f)----------------------------------------------------------------------------");

        System.out.println("");

        double ElectronicsSales=l1.calculateElectonicSales();

        System.out.println("Total Sales Amount for Electronics Category: Rs. "+ElectronicsSales+"/=");

        System.out.println("");

        System.out.println("Part (g)----------------------------------------------------------------------------");

        System.out.println("");

        double calculatepercentage=l1.calculateElectronicsalespercentage();

        System.out.println("Percentage of Sales from Electronics: "+calculatepercentage+"%");

        System.out.println("-------------------------------------------------------------------------------------");

    }

}

Outputs:-



